

California **GARDEN**

JANUARY-FEBRUARY 1978
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Fifty Cents



.....FLORAL EVENTS.....

January 23 & 30, 1978: February 6 & 13, 1978: 1:30 p.m.: Adrienne Green
Flower Arranging Classes, Room 101, Casa del Prado, Balboa Park.
Reservations and Information call Mrs. Hoyt at 296-2757.

February 15, 1978: Luncheon & program featuring flower arranger Sheila Macqueen,
Cafe del rey Moro. (See back cover.)

February 21, 1978: Regular meeting Casa del Prado, Balboa Park, 7:30 p.m.

..... SHOWS

January 21 & 22, 1978: San Diego Camellia Society "Mini" Show; Majorca Room,
Casa del Prado, Balboa Park, Saturday 11:00 a.m. to 5:00 p.m.; Sunday
11:00 a.m. to 5:00 p.m.; FREE.

January 28 & 29, 1978: Balboa Park African Violet Society "Mini" Show; Majorca
Room, Balboa Park, Casa del Prado, Saturday 12:00 to 5:00 p.m.;
Sunday 11:00 a.m. to 5:00 p.m.; FREE.

February 11 & 12, 1978: San Diego Camellia Society's 31st Annual Spring Show;
Conference Building, Balboa Park, Saturday 1:00 p.m. to 5:00 p.m.;
Sunday 10:00 a.m. to 5:00 p.m.; 75 cents admission.

February 25 & 26, 1978: San Diego Orchid Society Spring "Mini" Show; Majorca
Room, Casa del Prado, Balboa Park, Saturday 12:00 p.m. to 5:00 p.m.;
Sunday 10:00 a.m. to 5:00 p.m.; FREE.



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California GARDEN

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ABOUT THE COVER

Our cover drawing, *Camellia* 'Guitlio Nuccio' is drawn by Maxine Edwards, a La Jolla artist.

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THE TEMPLE FLOWER

by HOWARD ASPER

A Garden heritage from Ancient China

Howard Asper was superintendent of Descanso Gardens in La Canada when the extensive camellia plantings were started there. More recently he was with the Huntington Botanical Gardens in San Marino, in the same capacity. This article is reprinted from California Garden February-March, 1963.

IT HAS OFTEN been said that China is the Mother of Gardens. It is certainly true that from the slopes and canyons of her mountains have come many of our garden favorites. High on the list of valuable ornamental plants originating there are the magnolia, osmanthus and rhododendron. Yet perhaps the most spectacular of all plants of Chinese origin is *Camellia reticulata*.

This particular species was classed above all others by the Chinese themselves. History mentions the cultivation of *Reticulatas* as early as the tenth century. They were grown in temple gardens because they bloomed at the time of the Chinese New Year, when they played an important part in religious ceremonies. These plants also found their way inside the walled gardens of the very wealthy, and that could be why the western world was so slow to learn about them.

One variety of *C. reticulata* did come to light when a Capt. Rawes, the master of an English tea ship, brought it back to England in 1812. Always on the lookout for rare plants, he said it was offered to him in Shanghai. This startling beauty created a sensation among English plantsmen, who named it Capt. Rawes, for the worthy gentleman who had so tenderly cared for it on its long journey to England.

For over one hundred years this only known variety of *C. reticulata* was highly prized and widely grown. In the year 1904, six plants of this type were imported to the United States, three of which reached California. Two of these left no record of their fate but one was planted in Strawberry Canyon on the University of California campus at Berkeley, where it still grows.

In 1924 George Forest, an English plant explorer, found the wild form of *C. reticulata* on the mountain slopes of Yunnan province near the town

of Kunming. From seed he sent to England we now have this species available for our own gardens. Its growth is quite vigorous, but its flower is a simple, rose-red single, about two inches in diameter. It is grown mainly by hybridizers who have found it sets seed very readily.

In 1946 the rumor spread that there were many varieties of *Reticulatas* growing in the same location where the wild form was found. It was said that the beauty of these flowers was greater than that of any others known—in fact, they beggared description.

Meanwhile public interest in camellias was growing rapidly so it was inevitable attempts would be made to import these fabulous varieites. Strangely enough, two men, each working without the knowledge of the other, succeeded at about the same time, the early part of 1948. Manchester Boddy, then of Los Angeles, and the late Ralph S. Peer, of Hollywood, had each ordered the same twenty varieties that seemed to be the only ones available then, although we have since read of many more. Mr. Boddy was able to raise fifteen out of his twenty, but Mr. Peer succeeded with only three. When these gentlemen learned they were each seeking the same goal they compared notes. They were surprised and delighted to find that the three plants Mr. Peer saved were among the five Mr. Boddy had lost. Working together they were able to introduce eighteen gorgeous new *C. reticulatas* into the gardens of Southern California.

As might be expected, each variety had its own oriental name, the translation of which is most poetic. Name lists are seldom interesting, but the following are bound to excite mental pictures. They are: Butterfly Wings, Crimson Robe, Noble Pearl, Lion Head, Chang's Temple, Purple Gown, Shot Silk, Pagoda, Moutancha, Chrysanthemum Petal, Large Cornelian and Willow Wand. This incomplete list represents the best names of the best varieties. It is impossible to describe the superlative beauty of these flowers, but they all have exquisite coloring, undulated petals and a spread of from six to seven inches that is the rule, rather than the exception.

The flowers are all any camellia fancier could desire but the growth habit and vigor of the plants are not what we might hope for. Leaves are dull as compared to our Japonicas. Sometimes their straggly form may be overcome by careful pruning. Reticulatas suffer easily from over watering or over fertilizing. This is probably due to their sparse foliage.

So far propagators have been unable to root Reticulata cuttings. They can increase their stock only by grafting. Usually rather large understock (which produces rapid growth) is used. This could account for the straggly habit. These plants seem to thrive best in locations which afford a liberal amount of light. Early morning or late afternoon exposure to full sunlight is beneficial, while a midday covering providing half shade is ideal.

In the vicinity of Escondido, Reticulatas flower in the months of February and March. If exposed to freezing, the buds generally drop off. Some of the finest flowers in California have been produced in the mild locations near the coast.

Perhaps the greatest contribution these varieties will make to our gardens will be in the field of hybridization. It has been proven that they can be successfully crossed with the Japonicas. Several of the resultant hybrids show promise of combining the large flower of the reticulata with the sturdy compact plant of the Japonica.

One such hybrid, with a distinctive red flower, is being introduced this year. It bears the name of William Hertrich, curator emeritus of the Huntington Botanical Gardens, who so richly deserves to be honored in this manner. The plant is a definite improvement in growth habit and vigor and will prosper where others have failed.

Reticulata varieties can be obtained at the better nurseries and certainly at all good camellia nurseries. The size and beauty of their flowers is a challenge to a garden enthusiast, and success in their culture is a badge of merit.

In China, a collection of Reticulatas was passed from one generation to the next. It was considered a standard by which to measure family prestige. We are grateful that this wise custom served to conserve these flower treasures to enrich the gardens of the world today. □



Camellia reticulata, William Hertrich, a new hybrid by Howard Asper.

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RASPBERRIES EVERBEARING

by ROSALIE GARCIA

WHAT IS MORE delectable than a bowl of fragrant, fragile red raspberries floating in thick cream? And how often is it possible to find them? Sometimes in mid-summer our supermarkets will have 8-ounce baskets—about one serving—of these most delicious fruits at one to two dollars a basket. They are so perishable that shipping from the cool West Coast of Oregon and Washington is expensive and not attractive to retailers. We settle for jam and the frozen ones, which are acceptable, but lacking in the aroma of the fresh ones.

The raspberry that we know today has been hybridized and cultivated until it is bigger, sweeter, and more aromatic than its parents, the wild ones of our northern states or the European and Asiatic ones cultivated for many years. It is a member of the very large rose family and the genus *Rubus* which includes the brambles: blackberries, dewberries, and raspberries, all having thorns along their canes.

Red raspberries are the best for eating fresh, are the easiest to grow, and are small enough for the home garden. Grown as annuals, they need no staking, are easily picked and are ornamental in arching rows. The fragrant leaves make good tea, either fresh or dried.

Raspberries come in four colors: yellow, purple, black, and red, with the red being the most popular, and the easiest to grow. The black ones, known as black caps, are more tart with larger seeds, and are used for jam and a dye for stamping meats.

The large commercial growing centers are in Oregon, Washington, New York, and New Jersey. The fields are near the processing plants so there is little lost between hand picking and the processor. All through the northern half of the United States there are numerous smaller plantings, and home gardens regularly produce for the family.

Because raspberries are naturally cool weather plants that need lots of water, it has been a real challenge to grow them in warm climates. But plantmen like nothing better than to find a way of adapting plants to an unfriendly climate. They know

that roses grow in our climate and that raspberries are from the same family. Government experiment stations, nurserymen, and hobby farmers have combined and cooperated until they have come up with raspberries that will produce abundantly here in San Diego County and in other warm climates. So far, the extreme heat of our great growing valleys have not responded, but that may come, for they are working on crossing with Asiatic varieties that withstand heat.

In our North County with its inland valleys and wider range of temperatures, there are many hobby farmers and good gardeners who are supplying our specialty markets and gourmet food distributors with delicious raspberries, May to November, from everbearing varieties. Home gardeners furnish their own tables from a good row or two in their gardens.

One North County farmer has been very successful growing raspberries commercially on a half acre. Albert Reinsch reports he experimented with well-known varieties of red raspberries such as 'Williamette', and 'Latham', and the purpole raspberry 'Sodus'. Although they produced, he was not satisfied with them. Then he obtained a red variety from an Oregon nurseryman which was not named at the time but was numbered 1031. Mr. Reinsch says he knows that the well-known 'Latham' was one of the parents, but he does not recall the entire pedigree. He started with a dozen roots. From these roots he has made enough divisions to plant his half acre and in addition has sold thousands of plants. One root is capable of producing dozens of suckers (canes) which may be separated from the parent plant.

Usually one plants raspberry roots in early spring about three feet apart, giving room for expansion through the numerous suckers, but they do not bear until the next year. However, Mr. Reinsch treats his 1031 as an annual. In early winter he mows the entire patch down to the crowns and lets them lie dormant until they begin coming up in March. They continue to send up many new canes which bloom and produce on the tips of the 3–4 foot canes

late in May and on again into November. No support is needed for these shorter canes. After the berries are picked from a cane, it produces no more and could be cut down, but Mr. Reinsch does not do it until he mows later in the year because that would be an almost daily job all summer. On one half acre one needs to pick nearly every day from four to six months. He thinks that is chore enough. His planting is in a soil of good loam and decomposed granite on a gently sloping hillside facing the southeast. He has been producing on this plot for five years, using no fertilizer or insecticides except for snails, but he does use lots of water. On hot days he has even watered twice a day. In poorly drained soil mosaic disease can be a problem. Sprinkling is not recommended for this fruit, for it can cause mold. Since the roots go deep, irrigating is best.

Other varieties do grow in warm climates. Burpee sells four everbearing varieties: 'Heritage', 'Indian Summer', and 'September' of the reds, and a new blackcap, 'Black Treasure'. I know some growers in the County who follow the biennial pattern very successfully. They plant their roots in the fall or winter about three feet apart, replant the suckers (new canes) as soon as they are a foot tall, reap a good crop the next spring on the original roots, and on the sucker plants the next year. By repeating the process of planting the suckers, they keep a

continuous yearly crop. Some of these grow so tall they have to be staked or tied up teepee style. The old canes are cut back after they have produced, but only half-way, so laterals are formed which produce the next season. Even though in our dry climate watering deeply is most important, one must protect the berries from dampness. Growing near the Coast can be hazardous unless one can provide good air circulation to blow away the dampness and fog. They like the chill, but not the moisture.

Unless one can use the fruit immediately, early morning picking is not recommended, for the dew or fog will cause mold in no time. As little handling of the berries as possible is necessary because they are so fragile. They are one fruit that cannot be harvested until they are fully ripe, because the berry won't separate from the core until it is fully mature. This makes it usable immediately, and is a luxury most convenient for the home gardener. Just imagine going out early in the morning, picking enough berries for breakfast and eating them without washing to preserve their delicious aroma! Raspberries can be grown in wam climates—look around and try one of the everbearing varieties. □

Reference: "Growing Berries and Grapes at Home" by J. Harold Clark, an Oregon Nurseryman.



Early Spring Vegetables

Vegetables respond to early spring temperatures in various ways. Some do not mind chilly days and can be planted as soon as frost leaves the soil. These include beet, carrot, cabbage, lettuce, onion, pea and spinach.

Others will tolerate cool weather, but not frost, so cannot be planted until after the last heavy frost of the season. Broccoli,

cauliflower, endive and kohlrabi are among this group.

Seddlings intolerant of any frost at all are bean, corn and potato. Wait until frost-free weather to sow these seeds.

Soil temperature as well as air temperature must be warm (60 degrees) before seeds of cucumber, eggplant, lima bean, melon, pepper and tomato go into the ground.

I REMEMBER ROLAND HOYT

by JANE MINSHALL

FIRST, THROUGH his writing and, later as a friend, Roland Hoyt played an important part in my life for nearly thirty years. I remember him with feelings of affection and admiration. I first heard his name in 1939 when I was a student in the Department of Landscape Design at the University of California, Berkeley and a professor recommended a new book *Ornamental Plants for Subtropical Regions* by Roland S. Hoyt—a book he felt would prove very useful. Useful—what an understatement! This book was to become the “plant bible” of landscape architects, horticulturists, and home gardeners in all areas where subtropical plants can be grown. Roland’s knowledge of plants was truly impressive and his book is a gold mine of information. In 1958, a revised edition was published. One of the many things that makes this book so special is the fact that Roland had an unusually perceptive eye. His perceptiveness is apparent not only in his written descriptions of plants but also in his excellent pen and ink drawings. Through these drawings and through his ability to paint word pictures, he was able to capture the very essence of the plants he described.

One description I’ve always particularly enjoyed is for the truly unusual devils handflower tree or monkey hand tree, *Chiranthodendron platanoioides*. This is an unusually beautiful tree from the standpoint of the interior as one looks up into the developing structure—an illusion there, a vague golden light as of a sudden burst of sunset through clouds—dispelled by the glower of the downreaching hands.” Or, how about this one for mosquito plant, *Lopezia albiflora*, “clouds of minutely fashioned, gay little flowers done in white and pink, hover and settle down on the bushy structure January and through March—for all the world like a swarm of mosquitoes waiting interminably to strike—happy thought.”

I remember attending a state-wide meeting of landscape architects held in San Diego in 1962. One of my college classmates, who had become a very successful landscape architect in the Bay Area, was there and I asked him if he would like me to intro-

duce him to Roland Hoyt. I’ve never forgotten how his eyes lit up with anticipation as though he were about to meet royalty!

I first met Roland Hoyt in 1946 at a small social gathering. Having been introduced, I found courage a few weeks later to phone him and ask if he could use my services as a landscape draftsman. Although his answer was no, I believe that was the most worthwhile phone call I ever made. A few days after my call Roland telephoned me and suggested I contact Dr. Ralph Dailard, then business manager for San Diego City Schools. At a Rotary Club luncheon Dr. Dailard had told Roland that the school district was embarking on a huge building program and planned to hire a staff landscape architect and he would appreciate any recommendations Roland might have in the way of applicants. This led to a rewarding career for me with the school district that lasted more than twenty-eight years. How often the thought has crossed my mind that had I not made that call to Roland Hoyt at the very time that I did, how different my life would have been.

Prior to my appointment, the only other staff landscape architect the San Diego school district ever had was Roland Hoyt. He was employed for a short period around 1930 and one of his design projects was the landscape development for the new Hoover High School. Among other plantings for an inner court area, he included some uncommon flowering trees—an Australian flame tree, *Brachychiton acerifolium*, and two cape chestnut trees, *Calodendrum capense*. Over the years, when these trees were in bloom I received numerous phone calls from enthusiastic people asking about their identity. Roland would have been delighted to know this, for he often specified unusual and rare plants on his landscape plans, believing that only if enough people became acquainted with such plants and created a demand for them would they become easily obtainable at nurseries. The walls that surrounded the small planted court at Hoover High School are gone now; new buildings differently arranged have recently

been constructed. While two of the trees could not be saved, a cape chestnut tree has survived unscathed, and should for many more years bring forth the same old query when the blooms appear—"What is that flowering tree?"

At the urging of Roland Hoyt, I became a member of the American Society of Landscape Architects in 1954, Roland having joined in 1948. During the fifties and early sixties the San Diego section (of the Southern California Chapter) of A.S.L.A. consisted of only eight or nine members. The group included some pretty diverse personalities, and at our meetings we often looked for counsel to Roland Hoyt, with his soft-spoken manner and good common sense. At these gatherings I especially enjoyed the chance to talk with Roland about plants unfamiliar to me that he thought I should try. In 1964 the A.S.L.A. honored Roland by electing him a Fellow of the Society. Roland Hoyt was one of eight landscape architects nation-wide so honored that year at the Society's Annual Meeting. He told me soon after he returned from the convention that when he had first received word that he was to be named a Fellow he had, of course, felt greatly pleased and honored. But it wasn't until he was standing up there with the other seven new Fellows and hearing his life's accomplishments read aloud that he knew how truly thrilled he was. He said he could hardly imagine that all those fine things that were being said were about him! He was a very modest man. The A.S.L.A. had honored him for his great contribution in professional writing and also for excellence in executed works of landscape architecture. His design projects were many and included both private gardens and public works in the San Diego metropolitan area. Among the latter, Presidio Park is perhaps the one I have personally enjoyed and admired most of all. A consultant for many years with the San Diego City Planning Department, Roland Hoyt served as Chief Landscape Architect during the developmental planning of Mission Bay Park. His last major project was the landscape design for San Diego's Community Concourse.

The Salk Institute for Biological Studies in La Jolla was also one of his projects. In the middle sixties I toured the grounds with a group of landscape architects. I remember admiring a strikingly beautiful, very flat ground cover Roland had used between a walk and a street curb—sea-heath, *Frankenia capi-*

tata laevis. It was obvious from the rich blue-green color of the foliage that this was a plant that reveled in the moisture laden sea air. Two years before, Roland had given me a small pot of *frankensia* to try, even though I lived in the warm dry foothills, about twenty miles in from the ocean. To this day it stubbornly clings to life, but barely—a pitiful little patch of ground cover that apparently longs for coastal fog. But who knows, another gardener in my area might succeed with *frankenian*, even though I have failed. Roland Hoyt was always greatly interested in the idea that the natural range of plants could be extended by propagating those plants that managed to adapt to an unfavorable environment. In 1962 he wrote an article about *Markhamia lutea*, a showy flowering tree intolerant of frost, in which he stated "This tree might be used to illustrate the principle and desirability of fostering individual trees that seem to adapt. When a gardener finds such a tree, he should call it to the attention of a progressive nurseryman in order that wood or seed may be used to perpetuate the apparently hardier strain, and serve to pull the range of the species farther north or into a more severe environment."

Roland Hoyt died in 1968. Certainly "gone but not forgotten" can be said of him. Many of the plantings he specified on his plans are mature trees and shrubs now, enjoyed by countless numbers of people. And then there are his writings. A long time member of the San Diego Floral Association, he was a former editor as well as a frequent contributor to *California Garden Magazine*. In the sixties he wrote a series of articles under the heading "Roland Hoyt Recommends." These were about plants, many of them uncommon or rare, which he considered to be especially worthwhile for the garden. Some of these articles are to be reprinted in forthcoming issues of this magazine. I urge you to seek out and grow the plants he recommended. After all, much of the excitement and fun of gardening is found in trying something a little different, with success not guaranteed. With that, I'm sure Roland Hoyt would have agreed. □

Miss Minshall, former landscape architect for the San Diego Unified School District, has selected articles by Mr. Hoyt to be reprinted during the coming year. The first of this series begins in this issue.

Roland Hoyt* Recommends

Ochna multiflora

WITH SUCH playful common names as "Fun Shrub" and "Mickey Mouse Plant," *Ochna multiflora* should have a wide appeal, but to date it has not attracted more than casual attention from the gardening public. People look and exclaim, but seldom buy and try.

An evergreen shrub, three to five feet tall with a five to six foot spread, its leaves are bronzy in spring, dark green and leathery in maturity. They are about three inches long, alternate, oblong and finely toothed, with prominent veins. The name "ochna" refers to this leaf shape as being pear-like.

The flowers pass through three stages from early summer to September. The fragrant, dark-yellow blooms (May-June), are the size of buttercups. The flowers themselves are short-lived, but the broad and plump receptacle gradually turns to a vivid red. Then five green, seed-like fruits protrude from the red center and finally turn to a jet black. At this stage, children readily recognize "Mickey Mouse."

Ochna requires partial shade (somewhat less than half), and very slightly acid, well-drained soil. It is safe to about 20 degrees, if in good moisture. Choose a cool slope away from the sun. Tub planting will enable you to fulfill the plant's soil needs while deriving full benefit from its extraordinary appeal as a conversation piece.

*Member ASLA, author of *Ornamental Plants for Subtropical Regions*.



Drawing by Alfred C. Hottes

Indoor Plants Need More Than Tender Care

Three ingredients of success in the continuing health of indoor plants in a home or office are: light, humidity, and temperature.

The American Association of Nurserymen counsels that the amount of light required by an indoor planting depends on the type of plant, itself. The garden center will recommend the density of light required for each plant. For some, the natural light available will suffice; others will require additional illumination.

The moisture, or humidity, required is usually less than the amateur indoor gardener might expect. A "moisture meter" is a highly useful device for measuring this factor, and is available from most garden centers.

The happiest temperature for indoor plants is about 70 to 72 degrees, and offices or homes with a number of plantings should avoid changing the temperature significantly at night.

SOUTHERN CALIFORNIA DESERT COUNTRY

REFLECTIONS OF A RECENT DESERT ENTHUSIAST

by MARY ELIZABETH BAUHAN

The author is president of the Village Garden Club of La Jolla. SOUTHERN CALIFORNIA is particularly rich in the diversity of its desert country. The mountainous elevations, great dunes and rolling terrain of the Colorado Desert's Salton Sea and Borrego Springs area typify this diversity. I have had the privilege of becoming acquainted with a track of desert of about 350 acres west of the Salton Sea. I have traversed on foot what appears to be a barren land and I have never failed to feel its drawing power, a land of natural wonders seemingly unaffected by the passage of time. Here both flora and fauna have adapted themselves to the rigors of soil and climate. The discerning visitor finds much to interest him for it has been rightly said, that the desert appears barren only to the uninformed.

Take for example the vegetation of this area, rich in both its variety and exotic beauty. While each season of the year has its own special attractions, late winter and early spring are the times when the desert blooms and comes into its own. Barrenness disappears and trees, shrubs, and flowering plants put on a spectacular array of color. The many washes which are common to this area are responsible for nurturing some of the desert's most interesting plants.

The palo verde, *Cercidium floridum*, a tree of unusual beauty grows luxuriously in the desert washes. It is characterized by its smooth vivid green bark and its showy pale-yellow flowers which in spring it produces in great abundance, a veritable blaze of color. Later on in the year the small leaves disappear but the vivid green branches remain.

The handsome silver leaved desert holly, *Atriplex hymenelytra*, is a salt bush which flourishes in this area. This spectacular shrub has myriad small leaves whitish or even purplish in appearance. They grow on twisted stems and twigs and remain on the bush over a long period. It is high on the conservation list, and rightly so, for the traveller is drawn to it with an almost irresistible urge to gather some.

Brittlebush, *Encelia farinosa*, a showy plant, grows here in abundance and is a relative of the

sunflower. It has a woody trunk from which numerous branches rise. It is compact and round in appearance and sometimes as much as several feet across. The leaves are silvery gray, and the flowers a brilliant yellow with yellow or brown in the center. Brittlebush grows in the washes. It is very prolific throughout the desert area of San Diego.

Desert velvet, *Psathyrotes ramosissima*, a compact rather flat plant, is characterized by its turpentine like odor and its numerous thick, coarse leaves. Yellow, small, flowerlike heads make the plant very attractive. It is common in dry hard soils of flats and ledges, usually flowering over a two month period from March to June.

Other shrubs and flowering plants found in this tract are equally interesting. For example, here burroweed, *Ambrosia dumosa*, flourishes, as well as peppergrass, *Lepidium flavum*, used by the indians for food and flavoring. The desert trumpet, *Eriogonum inflatum*, one of the buckwheat family, and desert lavender* grow abundantly. One should not fail to mention the small flat plants commonly referred to as "belly plants." Their tiny flowers of purple, yellow, and white are so small that one has to be almost prone to examine them, hence the name, "belly flowers."

Proceeding from the Salton Sea to Borrego Springs on Route S22 one may see some of the most spectacular desert country of this area. The flat rolling terrain gives way to giant sand dunes of enormous proportions gutted by deep gullies almost completely devoid of vegetation, and an awe-some sight to the uninitiated. Yet as one continues, the terrain changes and here the ocotillo, *Fouquieria splendens*, grows in abundance. This striking plant has vicious spines which grow from stout basal stems. Long cane-like branches reach sometimes more than 20 feet high with scarlet tubular flowers at their tips. It is truly a wonderful sight and one long remembered.

Proceeding on, the road runs through a meadow-like stretch where, in the spring, a veritable carpet

**Hyptis emory*

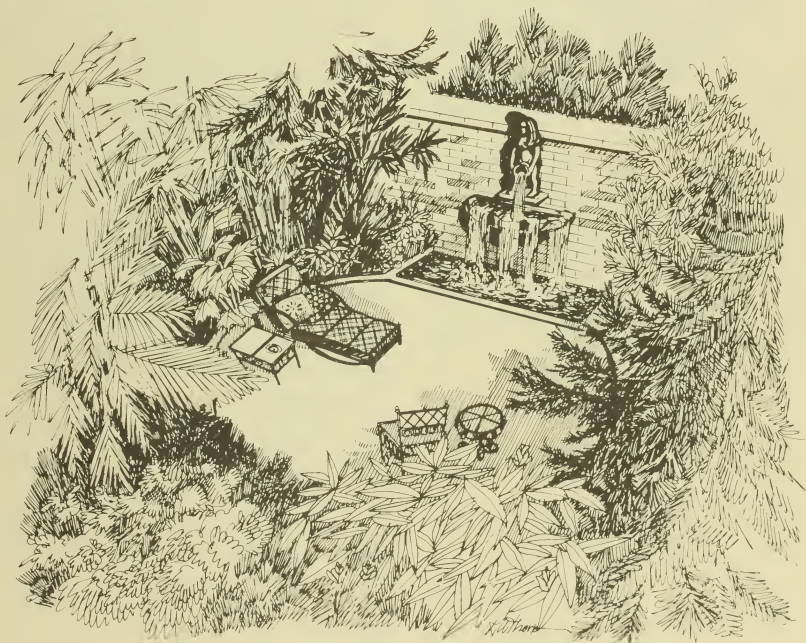
of verbenas, baby asters, and primroses in lavender, white and yellow shades intermingled in a kaleidoscope of color. The area stretches out on both sides of the road and the sight is breathtaking.

Perhaps a fitting end to this suggested journey is Borrego Palm Canyon situated in Borrego Desert Park. Here grows the native fan palm* the only native palm to be found in the continental United States. One must be a sturdy hiker to reach the grove where the palms grow. Mountainous escarpments guard the entrance to the trail which is rugged and long. Enormous rock formations along the way guard it from encroachment by automobile or horseback rider and

preserve its pristine beauty. When the end is reached, the hiker is rewarded for any effort expended.

A nature trail, most interestingly laid out, leads to the canyon. All along the way the trees, flowering plants, and points of interest are labelled. A well designed brochure with descriptive material assists the hiker to identify these. The nature lover's curiosity is satisfied and the marvelous world of plants in the Southern California desert country has, perhaps, added another friend. □

**Washingtonia filifera*



OUTDOOR STUDY — Why should the “study” be indoors all year ‘round when outdoors is so much nicer much of the time? A small and private area of the yard with living plants, trees and

shrubs to screen distractions out and keep beauty in can be the happy alternative, says the American Association of Nurserymen.

SEEDS ARE AMAZING

by DAVID BLITZBLAU

The author is a member of the Rancho Bernardo Seven Oaks Garden Club. Gardening has been his chief hobby since he raised a dozen sunflower plants from seed when he was 5 years old.

WHAT IS a seed? In essence it is an embryo packed for transportation. A tiny undeveloped plant, which alone or accompanied by a store of food to help it on its way after germination, is enclosed in a protective coat called the testa.

Perhaps we can grasp the wonder of this living package more readily if we look at one of the smallest seeds, that of the tobacco plant. It takes 400,000 of these seeds to weigh one ounce. One tobacco seed weighs less than one thousandth of a gram. Yet the plant that it sends forth may weigh up to 20 million times the weight of the original seed. Despite these and other observations, no predictable relationship has been found between the sizes of seeds and plants that grow from them.

Although the debate concerning the primacy of the chicken or the egg may remain unresolved, there is little doubt that plant life flourished upon the earth for many hundred million years before the first seed formed, ripened, fell to earth, germinated and sent forth new life.

Whether the first seed bearing plants, the gymnosperms, evolved from, or developed collaterally to their predecessors the sporophytes, is not known for certain. That there was a close relationship, is demonstrated by the fact that the oldest known gymnosperms were seed bearing ferns. Known only from fossil remains, these seed ferns have been extinct for millions of years. Paradoxically, all of the ferns surviving today are sporophytes.

Unlike the spores born by mosses and ferns, which constitute only half of a two stage reproductive process requiring a very moist environment, the seeds of gymnosperms develop from ovules fertilized by pollen that is carried on the wind or by insects. Lacking the protection of an ovary, or seed pod, their seeds arise and develop exposed on megasporophylls, leaflike structures such as the scales of

pine cones. The word gymnosperm, which means naked seed, refers to the lack of a hard protective coat around the fertilized ovule or embryo.

During the age of the dinosaurs gymnosperms flourished and great forests composed of the ancestors of our redwoods, pines, and other great conifers covered the earth. Other gymnosperms thriving at that time included the spruces, firs, and ginkgoes, as well as the palmlike cycads.

The cycad, or sago palm, has one of the most spectacular and colorful seed heads that you may ever see. It forms at the top of the plant in the center of a rosette of palmlike green leaves, appearing at first like a flattened cone. In time this large fuzzy beige colored button develops and unfolds revealing a myriad of persimmon-orange seeds, each about twice the size of a chestnut. The seeds stud velvety antlerlike arms, each one ending in a short fernlike frond. The arms are layered one on another and radiate from the center of the plant. Removed from the plant, the seed head is an extremely decorative and arresting conversation piece. In Bermuda the seeds are used to make heads and faces of dolls sold to tourists. However, beware, the seeds are also poisonous.

The origins of the angiosperms, the largest, best known, most widely dispersed, and economically valuable group of plants living on the earth today, were described by the evolutionist Charles Darwin as "an abominable mystery," which to this day botanists have been unable to unravel. Angiosperms, comprising all of the true flowering plants, are believed to have arisen from gymnosperms, but fossil records of their specific antecedents have not been found. Appearing abruptly as well as abundantly in fossils 65 to 136 million years old, they may have originated as much as 20 million years ago.

Derived from Greek words meaning seed vessel, the word angiosperm denotes all plants that bear their seeds enclosed in an ovary, which most of us can more easily recognize when it becomes a fruit, seed pod, or other structure for the release of the

mature seeds. Also, most seeds of angiosperms have hard or thick seed coats, which serve to protect the embryo within, as well as to allow a longer period of dormancy than that of seeds with thin coats.

The angiosperms are divided into two classes, the monocotyledons, comprising more than 500,000 species, recognized by their parallel veined leaves and flower parts in threes or multiples of three, and the dicotyledons, with more than 200,000 species, distinguished by net-veined leaves and flower parts in multiples of four or five. Nearly all the world's most important and abundant plants are dicots.

Although we are surrounded by seed bearing plants, few of us are aware of how profusely seeds are produced. An acre of ordinary farm land is reputed to have 1½ tons of weed seeds buried in it waiting to be turned to the surface where conditions may allow them to sprout and grow. One of the worst of these weeds, witchweed, is a parasite that attacks the roots of corn, sorghum, sugarcane, and other grasses. Each plant produces about half a million microscopic seeds, which may lie dormant in the soil for up to 20 years, and will not germinate until coming in contact with the roots of its host.

In the Sonoran Desert of the southwestern United States many birds, rodents, ants, and beetles depend upon seeds for their main source of food. Among them are harvester ants of the genus *Veromessor*, known to consume about 15,000,000 seeds per acre per year. Remarkable in itself, this fact is brought into perspective when we learn that a mature saguaro cactus may produce 200 blossoms, each of which in turn may bear up to 500 seeds. That's about 1,000,000 seeds per saguaro per year. However, only one seed in 60 million will ever reach the ground and find the required conditions to germinate. The others will have been consumed by birds, insects and rodents. Able to survive more than two years of dormancy, saguaro seeds will not germinated unless soaked by rain for at least 24 hours.

Many plant species produce seeds that are remarkably uniform in size, which has led man to use them as beads or units of weight. One carat of weight once corresponded to one seed of the carob tree. These stone-like seeds are so hard that even a hammer may not dent them. In ancient Greece voting was often accomplished using bean seeds. A white bean meant yes, and a black one, no. Since Biblical times, rosaries have been made from Job's

tears—the seeds of an Asiatic grass. And Victorian ladies had a fad of stringing unusual seeds to wear as jewelry.

Seeds have often been found in ancient tombs sealed for thousands of years. The *Gardeners' Chronicle* for November 11, 1843, tells of 12 wheat seeds recovered from a vase in an Egyptian tomb unopened for 3,000 years, which sprouted and produced 27 new grains. But this and similar reports are doubted by scientists because of the lack of verifiable evidence. There is, however, an undeniable report of a lotus seed that waited at least 2,000 years to produce its first blossom. In 1951, some Japanese workmen discovered a neolithic canoe buried beneath 18 feet of earth in a peat bog not far from Tokyo. The artifact was turned over to archaeologists, who in turn discovered three ancient lotus seeds lodged in a fossilized section of the canoe, later dated more than 3,000 years old. The seeds were given to Japan's lotus expert, Dr. Ichiro Ohaga, who germinated one of them in four days. His prediction that the flower would be pink came true 14 months later. (See *Life Magazine* November 3, 1952, vol. 33, p. 60, for a color photograph and story.) Other lotus seeds, found in a layer of peat beneath the soil of a dry lake bed in Manchuria, were stored on museum shelves for almost two decades before anyone thought of trying to grow them. First placed in strong sulphuric acid to soften their hard seed coats, they were then planted. Amazingly, they sprouted, grew and produced blooms on June 29th, 1952. You can gaze upon these remarkable flowers in the Kenilworth Aquatic Gardens in Washington, D.C., where they continue to bloom each July. Using radio carbon dating techniques, the seeds that produced these flowers were found to be between 830 and 1250 years old. The most remarkable by far of all ancient seeds was discovered by scientists in 1967, in a frozen lemming burrow with animal remains established to be at least 10,000 years old. These seeds of the arctic tundra lupine, *Lupinus arcticus*, germinated within 48 hours when returned to favorable conditions. (See article in *Science Magazine* [1967] vol. 158, p. 113-114).

Possibly the smallest known seeds are those of the genera of epiphytic orchids, which are so fine that they resemble dust. Next to these, come the seeds of the familiar succulent, kalanchoe, numbering about 2,500,000 to the ounce. For comparison,

lima beans number 25-75 seeds per ounce, radishes, 2,000-4,000 seeds per ounce, alyssum, 90,000 seeds per ounce, poppies, 140,000 seeds per ounce, petunias, 285,000 seeds per ounce, and begonias, 1,000,000 seeds per ounce.

Of the largest seed there is no doubt. Called coco-de-mer, "nuts of the sea," they look like double coconuts and weigh up to sixty pounds each. Produced by a palm that grows in the interior valleys of the Seychelles Islands, the seeds are often carried by ocean currents to distant shores.

In 1693, an observant chronicler in the Orkeny Islands noted that "cast up on the Shoar there are very oft those pretty Nutts of which they use to make Snuff-boxes." Called snuffbox and matchbox beans, as well as by several other names, they were observed growing in Jamaica many years later by the naturalist James Wallace. From this observation, he theorized that there must be a current flowing across the Atlantic Ocean between the West Indies and the north coast of Scotland. And that is how a seed sparked the discovery of the Gulf Stream.

Seeds have also led to other discoveries and inventions. Not the least, was that of agriculture itself, which together with speech and writing was one of the three basic accomplishments necessary for the rise of civilization. The foundation of our whole way of life rests upon economically useful seeds, they are truly indispensable. □

ON A SEED

This was the goal of the leaf and the root.

For this did the blossom burn its hour.

This little grain is the ultimate fruit.

This is the awesome vessel of power.

For this is the source of the root and the bud . . .


World unto world unto world remolded.

This is the seed, compact of God,

Wherein all mystery is enfolded.

Georgia Starbuck Galbraith

The New York Times
May 6, 1960



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THE CHINESE FLOWER CALENDAR

Mrs. Cope lived in China for several years and has made a study of Chinese culture.



PLUM BLOSSOM — MEI HUA
Flower of January and Winter
Symbol of Beauty and Longevity



TAO HUA — PEACH BLOSSOM
Flower of February
Symbol of Longevity and Marriage



TREE PEONY — MU TAN
Flower of March and Spring
Symbol of Love and Affection



YING HUA — CHERRY BLOSSOM
Flower of April
Emblem of the Feminine Principle



MAGNOLIA — MU LAN
Flower of May



TAN TSO — POMEGRANATE
Flower of June

FOR CENTURIES China has been called Hua Kuon, the Flowery Land. The Chinese are renowned for their love of nature and they even have a deity of flowers, Ho Hsien Ku. She decreed that reverence should be shown a special flower during each month of the year. This Chinese Flower Calendar is the oldest of its kind and has been used since the 7th Century A.D.

— Skipper Cope



LOTUS FLOWER – LIEN HUA
Flower of July and Summer
Symbol of Perfection and Purity



LI HUA – PEAR BLOSSOM
Flower of August
Symbol of Purity and Longevity



MALLOW BLOSSOM – KUAI HUA
Flower of September
Magic Charm against Evil Spirits



CHU HUA – CHRYSANTHEMUM
Flower of October and Autumn
Symbol of Harvest, Rest and Ease



GARDENIA – PAI CH'AN
Flower of November



A FU JUNG – POPPY
Flower of December
Emblem of Evil and Dissipation

DECIDUOUS FRUIT TREES

PART 2

by *GEORGE JAMES*

In Part 1 (November-December 1977) of this series of articles on deciduous fruit trees, space, soils, and bare root planting was discussed.

SOME VARIETIES of deciduous fruit trees are available as dwarfs as well as the standard size trees. Dwarf trees may be genetic dwarfs, those that are dwarf by nature, or conventional varieties of fruits that have been budded or grafted to a dwarfing root stock which influences the size of the plant but not the fruit. There are differences in the mature size of dwarf fruit trees; dwarf apple trees can be of several sizes, depending upon the kind of root stock used. Information should be sought on the mature size of the variety to be planted so they can be properly spaced to avoid crowding at maturity. Dwarf fruit trees are suitable for growing in containers where garden conditions are not the best for them, and the limited root space in the container will prevent them from getting as large as they would in the ground. Dwarf fruit trees planted in the ground will take about half the space needed for the standard size tree, so more can be planted and a greater variety of fruit grown. The needs and care of the dwarfs are similar to those of the standard trees, but dwarfs grow less vigorously and need less pruning, often only that needed to control the shape of the plant and to remove crowded or damaged parts.

Pruning & Thinning

There are two operations in growing fruit trees that are hard to get the novice gardener to do because their importance is not understood. One is the pruning of fruit bearing trees and the other is the thinning of the crop, when needed. These trees can set too much fruit, even after having been properly pruned in the dormant season. When the crop is large the fruit will be small, or too much fruit can break main branches, and when the crop is too large the tree is often unable to grow the shoots needed to produce the crop the following year.

When fruit bearing wood isn't grown one year, the crop the following year will be very small or perhaps none at all, so these practices—pruning and

thinning—tend to improve the size and quality of the fruit and to cause the tree to bear more evenly, year after year. The most effective way to thin a crop, if you are able to, is to pick the fruit off, leaving one fruit at a place, and spacing the fruits about two inches apart. Where this is not feasible fruit may be knocked off by striking the tree with a flexible pole, such as a bamboo pole used for fishing. This will reduce the number of fruit, but will take them all off in one place and leave them in clusters in others. This is not as desirable as thinning by picking, but better than not thinning at all. There are some varieties of fruits that habitually overbear. Once these are identified, the flowers on them can be thinned by knocking with a pole, as has been suggested for thinning fruit. Later if the crop is too thick, it may be thinned again by knocking with the pole. Fruit should be thinned as soon as you realize there is too much for the tree to bear. After thinning, the tree will channel all its nutrients to the remaining fruit and they will be larger at maturity.

Irrigation

Fruit trees grow the best and produce the nicest fruit when they are properly cared for, and the life of the tree, which can be short in our mild climate, will be extended. Irrigation is an important part of the care. As has been stated in Part 1, these trees do the best when planted in a soil that allows water to drain from the soil quickly, but such soils will also dry out rapidly and must be watched to see that the tree doesn't suffer from becoming too dry, which could cause the fruit to drop. Trees may be planted in soils that are more dense and do not drain quickly. Here the problem is to avoid overwatering, which can cause damage to the roots. Deciduous fruit trees are easier to care for if the soil in the area they are to root into is free of other vegetation. Meeting the water needs of these trees and those of another kind of plant can become complicated and the fruit tree may suffer from the care given the other plants. For this reason, one of these trees planted in a lawn is nearly

always doomed to failure. Mature trees do the best when they are watered deeply and not too frequently, so they can develop a deep root system. Young trees should be watered in a manner and to a depth that increases each year until the radius of the area watered is equal to the radius of the top of the mature tree. Fruit bearing trees should be watered about once a month during the warm part of the year: those on sandy soils a little more frequently, and those on clay soils less frequently. Start watering in the spring and arrange the schedule so that an irrigation is made just before the fruit ripens and the tree can carry through the period of fruit ripening without additional water. An irrigation during the time the fruit is ripening may cause the fruit to split, or may reduce the sugar content. After the crop has been picked, one or two more irrigations (at least) will be needed to carry the tree until the leaves drop, after which, the tree's need for water will be greatly reduced. This information is intended to be used only as a guide. It is not possible to give explicit directions for irrigation since there are so many differences in gardens and weather from year to year. Trees that do not get enough water will have small, dry fruit, and may have premature foliage drop. This could expose main branches to the sun and the bark could be burnt, and as a result the branch might die, or at least its effectiveness be impaired.

Dwarf trees in containers should be watered frequently enough so the soil never becomes dry, much more frequent watering than is needed by those growing in the ground. If the soil becomes dry while the crop is forming the fruit may be dropped, or will at least be of poor quality. Container plants will very likely need to be watered during the dormant season as the soil in the container can become so dry the plants will suffer—as they increase in size so does their need for water.

Pruning

In Part 1 of this article it was suggested that at the time of planting bare root trees, they be cut back severely. When this is done, and all other conditions are right, the tree will respond with vigorous growth so that from 3 to 5 strong, well-spaced primary branches can be developed from the trunk. Pruning is necessary for the next two years to develop secondary branches and a strong framework that in the future will bear and support the crops. After the framework has been developed, it is necessary to

prune the tree each year so that the size of the crop is regulated and the tree is able to grow the fruit bearing wood for the following year. Heavy pruning, such as is called for to achieve these ends, is best done during the dormant season when it is less of a shock to the tree. One of the pleasures of gardening is to be able to perform the necessary operations called for by the plants being grown, whether they are fruit trees, roses, or fuchsias. Pruning of deciduous fruit trees differs from one variety to another; an apple is pruned differently to a peach because the growth upon which the fruit is borne differs. It is necessary to know which wood bears the fruit on the trees you are to prune, because if you don't, you can cut off so much wood there will be very little fruit the following season. Yet if too much is left, the fruit will be small and the tree may be broken. When one considers the whole gamut of pruning, from almonds to walnuts, there is far too much detail to be considered to be related in an article such as this. Embryo orchardists are advised to secure a book that deals with this subject, study it, then put its recommendations into practice and observe the results. After a season or two you will be able to prune with confidence and to get the results that you desire. There are many books that are suitable for this. Two easily obtained are *The Sunset Pruning Book* published by Lane Publishing Company, and *All About Growing Fruits and Berries* by Chevron Chemical Company. *Western Fruit Gardening* is a very complete book on all aspects of growing deciduous fruits, written by Reid Brooks and Claron Hesse, published by the University of California Press.

All pruning should be done with tools that are sharp and clean, which will make the cuts without bruising or crushing the branch, for cleanly made and sound cuts heal quicker than those that are crushed or bruised. Cuts should be made close to the branch from which the growth originates so that a stub is not left, as stubs do not heal well and may leave an entry way for insects or diseases into the sound wood of the tree. Pruning cuts, or other places on the tree where the bark has been broken, should be painted with pruning compound. This material is slightly antiseptic, prevents the entry of disease or insects into the wound made by the cut, permits gasses and excess sap to escape from the wood, either of which, if retained in the wood, can damage the plant. Some materials, such as oil base

Examples of good pruning on bearing trees

1. A five-year-old Golden Delicious tree before pruning. The same tree after pruning is shown in photo No. 2 on this page.
2. Same tree shown in photo No. 1, after pruning. Light thinning only was required. Note the good development of fruit spurs.
3. A six-year-old Golden Delicious tree before pruning. This tree has been allowed to become too thick during previous years.



paints, if used for covering wounds on trees, will damage the cambium or growing layer which is just below the bark and the tissue from which growth is made. Light pruning, the snipping off of an end of a branch or removal of a water sprout, can be done at any time without damage to the tree. The same rules apply to the pruning of dwarf trees but because dwarfs grow less, they usually need less pruning, while those in containers, which grow even less, will need much less.

Pollination

Nearly all kinds of fruit trees can bear fruit alone, but there are a few that need pollen from another tree to fertilize their blossoms so they can develop fruit. Such trees are said to need cross pollination, and if the pollinator is not planted there will be a very small crop or no crop at all. In recent years some wholesale growers have been tagging trees that need a pollinator, telling which variety to use with it for this purpose. The books mentioned as sources of pruning information will also deal with this matter in depth. Where the room is limited, and a pollinator is needed, the two trees can be planted in one hole, as was described in Part 1. Pollination can also be provided by grafting or budding a piece of the pollen producing variety into the top of the other variety. When this is done, care must be taken when pruning not to cut out too much of the pollinator. When trees are planted that need a very specific pollinator, such as almonds, it is well to record the names of the varieties used and their location so that in the event one dies it will be possible to replace it with the same variety.

Within the last few years wholesale growers of deciduous bare root fruit have warned their customers not to store the bare root trees with the roots covered with redwood shavings. It has been determined that a toxic substance is released by the redwood when wet and trees stored in this do not start as well as others, and in some cases, a very high percentage of such trees have died. They also recommend that redwood shavings not be used in planting holes or in the soil mixture for use in tubs. Shavings of other woods do not release the toxic substance so they may be used, as can other kinds of organic material, such as peat moss, compost, and leafmold. Cotton gin trash, which is not readily available in Southern California, is also toxic to roots. If animal manures are used in a planting hole or soil mixture,

a month's time should be allowed for it to finish decomposing before the plant is set into the mixture.

Fertilization

Fertilization is necessary in most soils if good growth is to be made by deciduous fruit trees. The experience of commercial growers has shown that in most soils nitrogen is the plant food element most likely to be needed, but there are soils in which one or more of the other elements may be in short supply and this will be indicated by foliage color and other symptoms. It is said that a mature tree growing on a poor or somewhat infertile soil will need about one pound of actual nitrogen a year to grow and bear satisfactorily. Smaller trees, those on a more fertile soil, or those whose roots have grown into a well-fertilized area, such as a rose bed, will need less nitrogen than indicated above. The food values of a commercial fertilizer is indicated by a series of 3 numbers on the package such as 6-10-4. This indicates the fertilizer is 6% (N) nitrogen, 10% (P) phosphorous, and 4% (K) potash. It will take 16 pounds of this fertilizer to supply approximately one pound of actual nitrogen. This fertilizer could be used on bearing fruit trees and there would be no harm from the application of the P and K, except they would most likely be wasted. Ammonium sulphate has a formula of 20-0-0, so it is 20% N and it would take 5 pounds to supply the one pound of actual nitrogen needed by the adult tree on poor soil. There are also other fertilizers that contain only nitrogen. These high nitrogen fertilizers should be used with care, applied to moist soil and watered in as soon as applied. There is less danger of harm if the fertilizer is applied in two increments, a month or so apart. It is safer to fertilize after the crop has been harvested as feeding before can lower the quality of the fruit. Young trees can be fertilized in the spring, after growth starts, with a cupful of ammonium sulphate applied to moist soil and watered in. Animal manures vary greatly in their nitrogen value, from 0.5% to 1.5% N, so it will take between 70 pounds and 200 pounds to supply the needed one pound of actual N. The above recommendations are given to be used as guidelines and must be modified to meet the needs that exist where the trees are growing. It is better to under fertilize than it is to damage the trees by over feeding. Trees that are in a very competitive situation, those in competition with roots of other trees, may need larger or more

frequent feedings than has been indicated.

The fertilization of dwarf trees in the ground is the same as for the standard size trees, except the amount of fertilizer used is reduced. Dwarf trees growing in tubs should be fertilized more frequently than those in the ground, several applications being made during the growing season. As the plant becomes larger, additional feedings will be needed.

Pest Control

Pest control is an important and ongoing part of the care of deciduous trees and must be consistently practiced if the trees are to remain healthy and bear crops of good quality fruit. One should not be dissuaded from growing a home orchard because of the need for pest control practices because these trees do not have any more pests than many of the ornamental plants we grow. It is important to control pests so that unblemished fruit is produced and the vigor of the tree is not depleted by unwelcome boarders. A full discussion of this subject takes more room than can be found here, as each kind of fruit will have its particular pest which must be treated at a certain stage of growth to be effective. The books mentioned earlier as being sources of prun-

ing information also have information and instructions for pest control. Some of the diseases and insects that attack these trees live over the winter in mummified fruit, dead twigs or branches, or in clusters of dead leaves bound together with spider webbing. These should all be removed when the trees are pruned in the dormant season.

The gardener who patronizes a nurseryman that is knowledgeable about this subject is indeed fortunate, for he can take a sample of a leaf, a twig with gum exuding, or fruit that decays before it ripens and have his problem identified and learn what to use and how to use it to control the agent that is causing the trouble. It always seems easier to have someone tell you what causes the problem than to dig it out of written sources. Also, knowledgeable members of your garden clubs and plant societies are always willing to share their knowledge and experience with you. □

Part 3 of this article dealing with some varieties, their special requirements and peculiarities will appear in the March-April 1978 issue of this magazine.



A typical Yellow Bellflower orchard in the Pajaro Valley. These trees show the results of heavy crop production. Props from the previous year still remain in place in the orchard.

DISASTER IN THE DESERT

by BILL GUNTHER

ONE OF the most ruggedly scenic areas in all of Mexico is that part of Baja California which comprises the precipitous eastern slopes of the mountain range which is known as the Sierra de Juarez. Actually, that area is just a couple hours drive from San Diego, but because the terrain is rough, and because the area is virtually uninhabited, and because improved roads are lacking, few Americans have visited there.

The eastern slope is steep and rocky. During the course of millions of years the forces of erosion have cut a series of grand canyons into the slope; water runs eastward down these canyons to the desert. This combination of environmental features is rather unique, for which reason rather unique plant forms have evolved in the area. Most notable of these are two different palms, the California fan palm, *Washingtonia filifera*, and the blue palm, *Brahea armata*. Both species abound alongside the waterways of the canyons which drop down from the mountain heights to the desert floor. In the past, until 1974, the number of these living palms was rather constant; well over 100,000 trees. But the last three years have been a disaster to the palms. About half of them now are dead. They were killed by two 'chubascos', which we here call hurricanes.

Since there are no weather stations in that immediate area, no one knows what was the maximum wind velocity and no one knows how much rain fell on the east slope during those chubascos, but their intensity can be judged by the fact that miles to the north, one of them wrecked portions of Interstate 8 and also wrecked portions of the railroad which ran between San Diego and the desert. The railroad was so demolished that it had to be abandoned; possibly it never will be reopened. The palms suffered comparable devastation. During the chubascos, the streams in the palm canyons turned into raging rivers. The palms which had been growing alongside the streams were inundated and then were battered down by huge rocks which were carried along by the torrent of water. In one canyon the scouring shows that the water rose to 35 feet in



depth; only bare rock remained. More typical is the situation illustrated by the photos which accompany this article, wherein many of the palms have been smashed to death but other remain alive.

The canyons of the eastern slope of the Sierra de Juarez drain onto the desert floor which then gradually slopes down to the Laguna Salada, a 30 mile long lakebed which is below sea level. Ordinarily the Laguna Salada is dry, but now, partly because of the recent chubascos, there is water in it. Floating in that water, and scattered along its shores, and scattered along the desert 'washes' which run between the mountains and the Laguna Salada, are thousands and thousands of corpses of palms killed by the two recent chubascos.

If hurricanes now are coming so close to Southern California as the Sierra de Juarez, does that indicate a trend? Might the next one hit us?

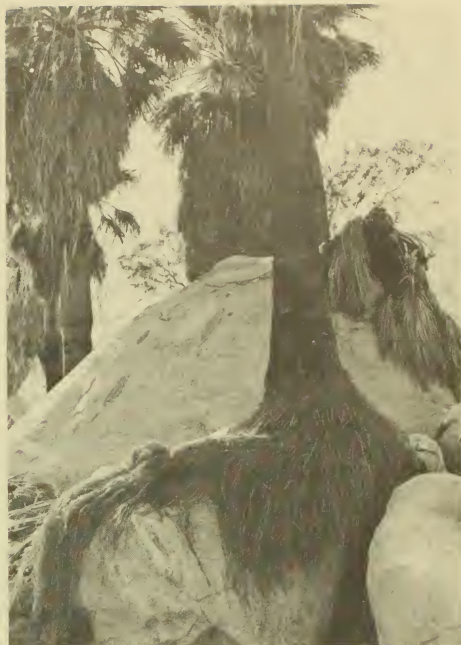
That question was answered for us by a person who is knowledgeable and perceptive. He is not identified here because he does not want his name linked with what might be misinterpreted as sensationalism. He feels that the odds of the next hurricane hitting us are no greater or lesser than the odds that the Sierra de Juarez again will be hit. He feels that if our area became victim of a hurricane of force comparable to either of the two which recently came uncomfortably near us, the toll might well be thousands of humans instead of thousands of palms. One particular hazard which he cited was that some of the old reservoir dams in the backcountry of San Diego and Tijuana might quickly fill up and then collapse for lack of adequate overflow spillway capacity; this would wipe out Mission Valley and parts of Chula Vista and parts of Tijuana. Another danger is that if such a storm happened to hit with onshore winds and hurricane waves at a time of high tide, then the soft bluffs along the oceanside of Solana Beach and Encinitas would be undermined and would collapse into the sea, along with all the big new apartments which are built on them, and along with the inhabitants therein.

Let us hope that it never happens. □

ONE: In the lower portion of one of the canyons of the Sierra de Juarez range, some of the rocks, palms, and other debris which was carried downstream by rushing water was left stacked up 12 feet high against a few surviving palms.

TWO: In the foreground of this photo can be seen the stumps of a dozen palms which were battered to death by rocks carried along by high water during a recent chubasco. In the background are two *Washingtonia filifera*s which survived the storm.

THREE: A torrent of high water removed all the soil from this area, but the palms remain standing, their roots exposed.



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HORTOGRAM

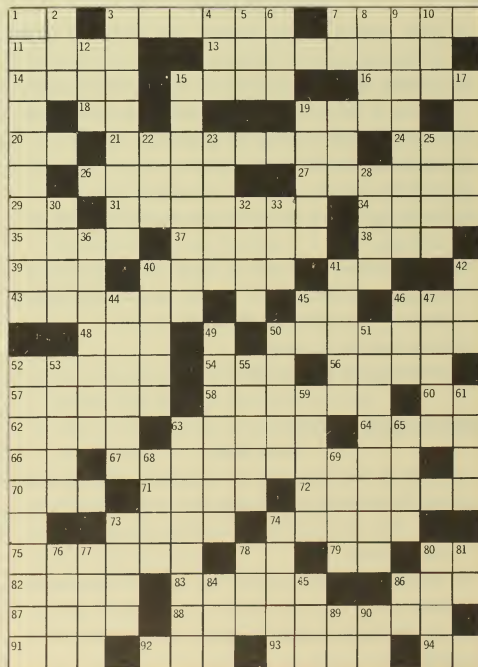
by SHARON SIEGAN

ACROSS

1. location (abbr.)
3. anise scented herbaceous plant
7. disparaged Oak variety
11. fleshy root used as food staple
13. any tree yielding hard, heavy wood
14. flour thickener
15. Iris by another name
16. fundamental plant part
18. for example
19. juniper ground cover
20. pronoun
21. perfumed flowering herb
24. a weight
26. use it to avoid bare ground
27. negligent
29. What's that again?
31. herb of Verbena family
34. unique
35. thorny flower
37. these plants cannot go to seed
38. time past
39. a grain
40. all species belong to one of these
41. preposition
43. witches' herb (sneezewort)
45. article of speech
46. distant
48. equality
50. some coffees add this
52. unwanted plants
54. a nature system (abbr.)
56. first stage of fern reproduction
57. Man's name (familiar)
58. selected (obs.)
60. preposition
62. land divisions
63. to sow
64. windows have them to frame the glass
67. flower named for habit of growing toward sun
70. not many
71. new starts around plant
72. cooking bulbs
73. goals
74. reject
75. edible fruit
78. that is (abbr.)
79. direction (abbr.)
80. acidity/alkalinity measure
82. plants without water will quickly -
83. inclined walkway
86. fish eggs
87. Eastern shade trees
88. small flowering plant
91. thing (Latin)
92. deep root
93. borrowed
94. Leptospermum is one

DOWN

1. small, delectable fruit
2. Eastern religion
3. digitalis
4. zero
5. age
6. chopped timber
7. direction (abbr.)
8. thickened stem used in plant propagation
9. pleasurable pastime for domestic fowl
10. Orientals relish these edible shoots
12. herb of repentance
15. this herb's flower is an insecticide (pyrethrum)
17. aromatic herb of fern-like appearance
19. sea birds
22. bird (Latin)
23. Man's name (variant)
25. Norwegian capital
28. castle protection
30. flowering shade vine (thick leafed)
32. Callas belong to this genus
33. political winners
36. snake
40. furze (British)
41. aromatic herb used to flavor bread and pastries
42. snoop
44. salad root
45. exclamation used to express various emotions
46. preposition
47. operatic solos
49. fastens again
50. number
51. secretly agree
52. shy blossom
53. wear away
55. state of disorder
59. leather strip
61. not that
63. aromatic Hawaiian flowering shrub
65. lengthy time period (variant)
68. first part of a witty expression or building inscription
69. undesired burden
73. picnic pests
74. calyx part
76. to upset
77. charitable distributions
78. small devil
80. wooden upright
81. personal pronoun
84. measure of electrical current
85. woman of exalted holiness (abbr.)
86. medical professional (abbr.)
89. preposition
90. and (French)



ANSWERS ON PAGE 28

NOW IS THE TIME

Compiled by PENNY BUNKER

BEGONIAS

Margaret Lee

- ✓ to keep plants clean of fallen leaves and debris.
- ✓ to make sure plants do not become too dry—lack of rain means a continuing watering program. Slow growth requires less watering, keep moist not wet.
- ✓ to add more mix to pots as needed to keep roots covered.
- ✓ to start cutting cane types.
- ✓ to spray for mildew, control slugs and snails, and spray for mealy bugs and for loopers.
- ✓ to start tubers for the bloom in the summertime.
- ✓ to protect from rains when they come; place pots in a protected place as a downpour can wash the soil out and expose roots.

BONSAI

Herbert Markowitz

- ✓ to graft conifers during January, and deciduous trees in February.
- ✓ to carefully observe the deciduous trees if there is warm weather in the later part of February. Keep in the shade or they will start budding and sprouting.
- ✓ to refrain from fertilizing your trees.
- ✓ to watch the watering—DO NOT overwater.
- ✓ to watch for aphids and other sucking insects; spray accordingly.
- ✓ to use a dormant spray such as copper oil or lime/sulphur mixtures particularly on maples, quince, and other deciduous trees after they have been pruned.
- ✓ to prune fruit bearing bonsai.
- ✓ to graft evergreen trees as well as conifers.

CACTUS & SUCCULENTS

Verna Pasek

- ✓ to watch for blooming cacti and succulents. Mammiliarias and Neopoterias in pots may be brought inside to enjoy. Place in a well-lighted location, out of drafts and not too warm.
- ✓ to watch for insects—weather has been encouraging for pests.
- ✓ to use alcohol and water on cotton swabs to wipe away scale.

- ✓ to protect tender cacti and succulents from frost.
- ✓ to protect from too much water—keep on the dry side if in cool temperature areas.
- ✓ to hold up on any fertilizers; these plants need rest at this time of the year.

CAMELLIAS

Benjamin Berry

- ✓ to plant and transplant while in bud or bloom before new growth starts.
- ✓ to remove poor and old blossoms to prevent any fungus build-up.
- ✓ to use a fungicide if needed.
- ✓ to feed 0–10–10 fertilizer.
- ✓ to maintain a regular watering program to supplement those periods between any rains.
- ✓ to remember camellias like moist soils, but not wet.
- ✓ to continue to spray for looper worms and dust with chlorodane for leaf beetles.
- ✓ to renew any mulch where needed; use fir bark or pine needles.
- ✓ to not fertilize newly transplanted bushes, but water well and often with a Vitamin B-1 solution.

DAHLIAS

Abe Janzen

- ✓ to prepare soil for planting; fumigate if needed. In February, dig in superphosphate and sulphate of potash (ratio of 2½ pounds for each 100 square feet of soil).
- ✓ to add compost materials to heavy and poorly drained soils—use manure, beanstraw, alfalfa, hay—turn under but leave soil rough to aerate.
- ✓ to start some selected roots in February to sprout which may give good cuttings. Apply bottom heat to encourage sprouting.

EPIPHYLLUMS

Mary & Warren Kelly

- ✓ to protect from frost.
- ✓ to watch over-watering but do not allow to dry out. If rains arrive, protect from too much rain.
- ✓ to protect new growth and long stems from wind damage.

- ✓ to start feeding in late January or February with low nitrogen fertilizer (2–10–10) to prepare for the blooming season.
- ✓ to check for pests—slugs and snails especially.
- ✓ to tie stems if grown on trellises; protect from breaking.

FERNES

Ray Sodomka

- ✓ to water gently, but do not soak during the hot days. Cool nights keep their feet too cold. Don't rely on rain—it will not find your hidden and covered plants.
- ✓ to remove and remount platycerium pups.
- ✓ to keep after slugs, snails, and pill bugs—winter does not stop them.
- ✓ to trim off dead fronds and keep surrounding areas clean—use dead material for a compost.
- ✓ to plant spore.
- ✓ to cover and protect plants during the night in frost areas. Cover with newspaper, sheets or plastic bags. You might place them in garage for protection.
- ✓ to relax on fertilizers. Use pellets instead of liquid because of the cold nights.

FUCHSIAS

William Selby

- ✓ to think about pruning and/or cutting back in frost free areas.
(Fuchsias may be pruned anytime in those frost free zones. Correct pruning each year is one of the most important phases in growing fuchsias.)
- ✓ to remove all weak thin branches as well as dead wood. Cut back at least 1/3 or leave 2 to 3 nodes (eyes).
- ✓ to apply a good 10–5–5 fish type fertilizer after pruning.
- ✓ to spray remaining foliage and ground to eliminate pests that might winter over.
- ✓ to make cuttings from the tender tips you pruned off. Remember in cool weather, they require a little more time to root.

GERANIUMS

Phil Bush

- ✓ to still take cuttings and start in sandy soil mix.
- ✓ to still reshape and prune plants.
- ✓ to practice good housekeeping; clear ground of leaves and debris.
- ✓ to feed lightly with a balanced fertilizer.
- ✓ to check for pests—looper worms, snails and slugs; malathion is a good safe spray to use; cygon 2-E is a good systemic.

- ✓ to protect from over-watering.
- ✓ to protect plants in frost areas below 28 degrees—cover with newspapers. Can move potted plants into garage or house for a time.

HEMEROCALLIS (Day lilies)

Sanford Roberts

- ✓ to remove dead bloomstalks and foliage from base of clumps to combat aphids that might winter-over to invade new spring growth.
- ✓ to water only if soil is dry.
- ✓ to prepare planting sites for next spring's plants. Spade deeply and incorporate peat moss and organic compost (natural or nitrogen-fortified redwood) into the soil. Mix thoroughly.
- ✓ to plant seeds in good potting mix after these have been refrigerated for 45 days or more to induce dormancy.
- ✓ to relax until February and spring dividing and planting begins in this area.
- ✓ to order catalogs and drool over colors and descriptions of modern day lilies. Order for earliest shipping dates to this area. (San Diego County has one commercial farm that ships and digs while you wait.)

IRIS

- ✓ to water your plants—especially if rains are light.
- ✓ to watch that plants do not dry out—this is growing time for many iris varieties.
- ✓ to make last plantings of the bulbous iris for spring bloom.
- ✓ to start a regular spray program with copper oil spray to help control rust.
- ✓ to start in February to feed all iris with a liquid 0–10–10 fertilizer; do not over-fertilize.

ORCHIDS

Charlie Fouquette

Cattleyas

- ✓ to not overwater Cattleyas that are in a dormant or resting period—keep damp so there is no root loss.
- ✓ to start a maintenance program after plant is resuming growth cycle.

Cymbidiums

- ✓ to feed Cymbidiums low-nitrogen, high phosphate and high potash fertilizer.
- ✓ to place snail bait out.

Phalaenopsis

- ✓ to feed Phalaenopsis a dilute solution of 3–1–2 or use Watch Us Grow or similar fertilizer. Use of B-1 solution or Superthrive in addition to above gives the plant

adequate opportunity to develop to full potential.

- ✓ to clean glass of hothouse, being careful to adjust plants so they may not be sunburned. On any Santa Ana days mist early so there is no water in crown by nightfall.

Oncidium

- ✓ to give some misting to *Oncidium*s (equitant) so they do not dehydrate. Don't really wet them—they are resting.

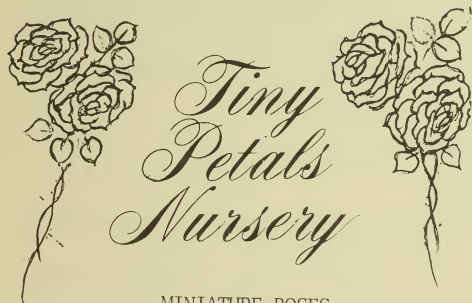
*Dendrobium*s

- ✓ to allow *Dendrobium*s (nobile type) to dry out now (if they have finished growing and developing their terminal leaves). Chill to about 45 degrees for 30 days.

ROSES

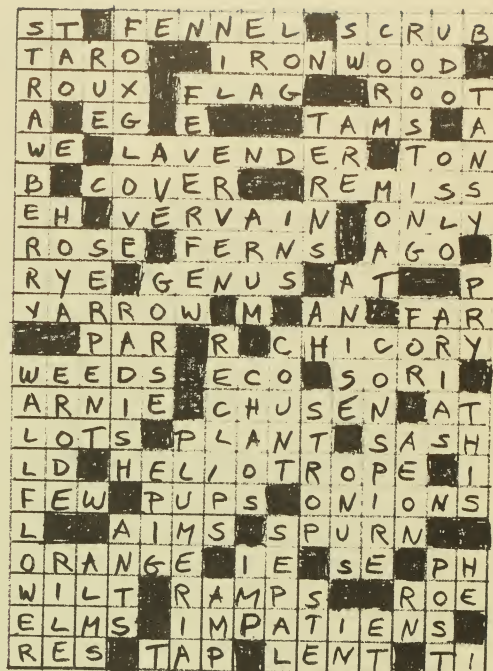
Dee Thorson

- ✓ to prune established roses; remove all twiggy growth and old canes, leaving three to six strong young ones. Remove all dead and stubby growth from but union with a sharp pointed saw to encourage basal breaks.
- ✓ to plant bare-root roses; mounding each bush with damp earth to prevent drying out. Keep mounded until new growth starts.
- ✓ to do a clean-up job and give dormant spray after pruning.
- ✓ to feed bushes as growth starts—one cup per bush.
- ✓ to give a liquid feeding to new bushes about six weeks after planting.
- ✓ to establish a schedule for watering and spraying.



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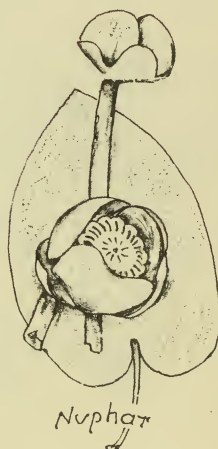
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Prs: Mr. Les Baskerville—583-4539

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